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Psychological and interactional characteristics of patients with somatoform disorders: Validation of the Somatic Symptoms Experiences Questionnaire (SSEQ) in a clinical psychosomatic population

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ABSTRACT

Objective: The new DSM-5 *Somatic Symptom Disorder* (SSD) emphasizes the importance of psychological processes related to somatic symptoms in patients with somatoform disorders. To address this, the *Somatic Symptoms Experiences Questionnaire* (SSEQ), the first self-report scale that assesses a broad range of psychological and interactional characteristics relevant to patients with a somatoform disorder or SSD, was developed. This prospective study was conducted to validate the SSEQ.
Methods: The 15-item SSEQ was administered along with a battery of self-report questionnaires to psychosomatic inpatients. Patients were assessed with the Structured Clinical Interview for DSM-IV to confirm a somatoform, depressive, or anxiety disorder. Confirmatory factor analyses, tests of internal consistency and tests of validity were performed.
Results: Patients ($n = 262$) with a mean age of 43.4 years, 60.3% women, were included in the analyses. The previously observed four-factor model was replicated and internal consistency was good (Cronbach's $\alpha = .90$). Patients with a somatoform disorder had significantly higher scores on the SSEQ ($t = 4.24$, $p < .001$) than patients with a depressive/anxiety disorder. Construct validity was shown by high correlations with other instruments measuring related constructs. Hierarchical multiple regression analyses showed that the questionnaire predicted health-related quality of life. Sensitivity to change was shown by significantly higher effect sizes of the SSEQ change scores for improved patients than for patients without improvement.
Conclusion: The SSEQ appears to be a reliable, valid, and efficient instrument to assess a broad range of psychological and interactional features related to the experience of somatic symptoms.

Introduction

The previous diagnostic category of somatoform disorders has recently been replaced by *Somatic Symptom Disorder* (SSD) in DSM-5. This diagnosis is characterized by "distressing somatic symptoms plus abnormal thoughts, feelings, and behaviors in response to these symptoms" [1]. Importantly, the previous requirement that symptoms had to be medically unexplained has been removed and psychological symptoms surrounding the somatic symptoms have been added (SSD criterion B). These positive diagnostic criteria are advantageous inasmuch as the diagnosis is now based on the presence of certain phenomena, rather than the absence of a phenomenon (i.e., a medical explanation). DSM-5 defines a specific set of psychological processes as diagnostic criteria: Excessive thoughts, feelings, or behaviors related to somatic symptoms or associated health concerns as manifested by rumination and/or high level of anxiety about health or symptoms and/or excessive time and energy devoted to symptoms or health concerns. However, several psychological characteristics that previous research has also identified as potentially relevant, such as a self-concept of bodily weakness, are not explicitly mentioned [2,3]. Rief and Martin [4] suggest that the B criterion should be operationalized by a wide range of cognitive, affective, and behavioral characteristics

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to further evaluate the validity of SSD. Moreover, it remains unclear how the set of relevant psychological processes ought to be measured in research and clinical practice.

Previous research has demonstrated that psychological processes predict functional impairment, health care utilization, and course of disease in patients with somatoform disorders above and beyond the number of somatic symptoms [2,5,6]. Whereas the number and severity of somatic symptoms can be assessed by the well validated Patient Health Questionnaire-15 (PHQ-15; 7–9), or its new brief version, the Somatic Symptom Scale-8 (SSS-8,10,11), different psychological characteristics of patients with a somatoform disorder can be measured with other instruments [12–19] — e.g., health anxiety with the Whiteley Index [20]. Thus far, however, no instrument has been specifically developed to assess attribution, emotional features, cognitions, illness behavior, and interactional aspects simultaneously for patients with somatoform complaints. The length and item heterogeneity of established instruments prevents the formation of combined sum scores or index variables. A single validated instrument that simultaneously assesses the range of psychological processes relevant to the diagnosis of somatic symptom disorder is needed.

We developed a self-report questionnaire based on the literature regarding psychological processes characterizing patients with a somatoform disorder [2,21] and on the basis of the official diagnostic draft that preceded the current DSM-5 SSD [1]. The result was the *Somatic Symptoms Experiences Questionnaire* (SSEQ; English version see Appendix A; original German version see Appendix B) which measures a broad range of these processes with 13 items (for more detail see 22). In addition to these 13 psychological items that constitute the scale score, the SSEQ includes two items regarding the existence of physical symptoms and the number of doctor visits during the past 6 months. To enable many possible applications, the first part of the questionnaire was designed to be used for the general population as well as for patients with somatic symptoms. The second part of the questionnaire was designed to assess the impact of somatic symptoms during the previous 6 months. The 48 preliminary items were based on the following psychological aspects: causal attribution of symptoms (e.g., organic or psychological), emotional aspects (e.g., health anxiety), cognitions concerning somatic symptoms (e.g., catastrophizing), illness behavior (e.g., body scanning), and problems while interacting with physicians. After a pilot test, the final 15 items were selected on the basis of a sample of 453 psychosomatic outpatients. A principal component analysis (PCA) of the 13 psychological items yielded a four-component solution: 1. Health-worries (5 items), 2. Experience of illness (2 items), 3. Problems while interacting with physicians (3 items), 4. Consequences of illness (3 items). The scale appeared to have promising psychometric properties such as high internal consistency (Cronbach's $\alpha = .89$), higher scores in patients with somatoform disorders than other patients, and ability to predict poor health-related quality of life (HRQoL).

The aim of the present study was to verify the factor structure and reliability of the SSEQ in a new sample and to comprehensively validate the questionnaire. To this end, its ability to identify patients with a somatoform disorder, its construct validity, as well as its sensitivity to change were tested.

Methods

Subjects

The inpatient sample was recruited from a large psychosomatic hospital in northern Germany, the Schön Klinik Bad Bramstedt. All patients were assessed using the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) by trained interviewers within one week post admission [23]. Inclusion criteria were being aged 18 or older and being diagnosed with a DSM-IV somatoform, depressive and/or anxiety disorder. Patients with a psychotic disorder, problems with substance abuse (except for pain medication), acute suicidality, insufficient language skills, or severe cognitive impairment were excluded. The study was approved by the Ethics Committee of the University of Lübeck and patients gave informed consent before participating.

Measures

Patient Health Questionnaire (PHQ)

The PHQ is a screening instrument for several mental disorders. Patients completed the subscales for severity of somatic symptoms (PHQ-15; 7,8), depression (PHQ-9; 24–26), and anxiety (GAD-7; 27,28).

Short Form 36 Health Survey (SF-36)

The SF-36 is a 36-item self-report questionnaire developed to measure HRQoL [29]. Two summary measures can be derived from the responses: the physical component score (PCS) for impairment related to physical health, and the mental component score (MCS) for impairment related to mental health.

Whiteley Index (WI)

To assess health anxiety, we used the 14-item, dichotomic version of the WI [20].

Scale for the Assessment of Illness Behavior (SAIB)

The SAIB is a 25-item measure of illness behavior [18]. It consists of five subscales: Verification of Diagnosis, Expression of Symptoms, Medication/Treatment, Illness Consequences, and Scanning.

Cognitions About Body and Health Questionnaire (CABAH)

The CABAH measures cognitions concerning somatic symptoms with its five subscales Catastrophizing Cognitions, Intolerance of Bodily Complaints, Bodily Weakness, Autonomic Sensations, and Health Habits [16].

Clinical Global Impressions — Improvement scale (CGI-I)

The CGI-I measures the improvement in clinical condition [30]. Improvement compared to baseline (e.g., hospital admission) is rated on a seven-point scale (1 = very much improved, 2 = much improved, 3 = minimally improved, 4 = no change, 5 = minimally worse, 6 = much worse, 7 = very much worse).

Statistical analyses

Confirmatory factor analyses (CFA) were carried out to re-evaluate the previous four-component model [22] and test a one-component model. To determine the adequacy of the model fit, a chi-square test was carried out and the Comparative fit index (CFI; good fit indicated by CFI ≥ 0.95) and the Root mean square error of approximation (RMSEA; good fit indicated by RMSEA $< .06$) were evaluated [31]. A non-significant chi-square test would indicate that the proposed model is not rejected. However, the chi-square test is sensitive to sample size, meaning that in large samples the chi-square statistic can be significant even if there is only a small divergence from the proposed model.

Item difficulties (i.e., mean item scores) and corrected item-total correlations were calculated as well as SSEQ total scores and subscores of the four components. Internal consistencies of the SSEQ and its four components were determined using Cronbach's alpha.

The validity of the scale was assessed using four methods. Firstly, we attempted to identify patients with a somatoform disorder by their total SSEQ score. For this purpose, Receiver Operating Characteristic (ROC) graphs and Areas Under the Curve (AUC) of the SSEQ, the WI, and the PHQ-15 were calculated (the latter two for comparison). The ideal cut-off score according to Youden's index [32] was determined. This cut-off, as well as the sensitivity and specificity of the SSEQ were